SANTA CRUZ BIOTECHNOLOGY, INC.

St3Gal-I siRNA (h): sc-106571

BACKGROUND

Cell type-specific expression of unique carbohydrate structures on cell surface glycoproteins and glycolipids provides information relevant to cell-cell interactions in developing and adult organisms. Sialyltransferases contribute to the diversity of carbohydrate structures through their attachment of sialic acid in various terminal positions on glycolipid and on glycoprotein (N-linked and O-linked) carbohydrate groups. The α2,3 sialyltransferase (ST3Gal I), also known as SIAT4-A and SI4A, is a type II membrane protein that catalyzes the transfer of sialic acid from CMP-sialic acid to galactose-containing substrates. St3Gal-I is normally found in the Golgi but can be proteolytically processed to a soluble form. St3Gal-I is elevated in primary breast carcinomas, brain tissues (matsuhashi03). St3Gal-I controls $CD8^+$ T lymphocyte homeostasis by modulating O-glycan biosynthesis. ST3Gal-I is a major inhibitor of core O-glycan formation on CD43 and CD45 in native T cells.

REFERENCES

1. Burchell, J., et al. 1999. An α2,3 sialyltransferase (ST3Gal I) is elevated in primary breast carcinomas. Glycobiology 9: 1307-1311.
2. Priatel, J.J., et al. 2000. The ST3Gal-I sialyltransferase controls $CD8^+$ T lymphocyte homeostasis by modulating O-glycan biosynthesis. Immunity 12: 273-283.
3. Grabie, N., et al. 2002. β-galactoside α2,3-sialyltransferase-I gene expression during Th2 but not Th1 differentiation: implications for core2-glycan formation on cell surface proteins. Eur. J. Immunol. 32: 2766-2772.
4. Matsuhashi, H., et al. 2003. Region-specific and epileptogenic-dependent expression of six subtypes of α2,3-sialyltransferase in the adult mouse brain. J. Neurochem. 84: 53-66.
5. LocusLink Report (LocusID: 6482). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: ST3GAL1 (human) mapping to 8q24.22.

PRODUCT

St3Gal-I siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see St3Gal-I shRNA Plasmid (h): sc-106571-SH and St3Gal-I shRNA (h) Lentiviral Particles: sc-106571-V as alternate gene silencing products.

For independent verification of St3Gal-I (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-106571A, sc-106571B and sc-106571C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

St3Gal-I siRNA (h) is recommended for the inhibition of St3Gal-I expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor St3Gal-I gene expression knockdown using RT-PCR Primer: St3Gal-I (h)-PR: sc-106571-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chen, J.Y., et al. 2011. A novel sialyltransferase inhibitor suppresses FAK/paxillin signaling and cancer angiogenesis and metastasis pathways. Cancer Res. 71: 473-483.
2. Petrosyan, A., et al. 2015. Keratin 1 plays a critical role in golgi localization of core 2 N-acetylglucosaminyltransferase M via interaction with its cytoplasmic tail. J. Biol. Chem. 290: 6256-6269.

RESEARCH USE

For research use only, not for use in diagnostic procedures.